

Acronym: EPO-Kit D

Title: Education Payload Operation - Kit D

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Developer(s): Teaching From Space Office, Johnson Space Center, Houston, TX

Sponsoring Agency: National Aeronautics and Space Administration (NASA)

Increment(s) Assigned: 18, 19, 20

Mission Assigned: N/A

Brief Research Summary (PAO): Education Payload Operation - Kit D (EPO-Kit D) includes education items that will be used to support the live International Space Station (ISS) education downlinks and Education Payload Operation (EPO) demonstrations onboard the ISS. The main objective of EPO-Kit D supports the National Aeronautics and Space Administration (NASA) goal of attracting students to study and seek careers in science, technology, engineering, and mathematics.

Research Summary:

- Education Payload Operation - Kit D (EPO-Kit D) includes a nomex backdrop with grid, gyroscopes, ruler, string, and soft Earth, moon, and, Mars scale models for use onboard the ISS during the Education Payload Operation (EPO) demonstrations and live ISS education downlinks..
- EPO-Kit D supports NASA's goal of attracting and retaining students in science, technology, engineering, and mathematics. Educators and students suggest activity topics for the live ISS downlinks aired on NASA TV which connect crewmembers directly to classrooms. The EPO demonstrations will be downlinked, edited, and used to support education resources for educators and students in grades K-12.

Detailed Research Description: Education Payload Operation - Kit D (EPO-Kit D) aims to inspire students to study the fields of science, technology, engineering, and mathematics to create the next generation of engineers, mathematicians, physicists, scientists and space explorers. EPO-Kit D includes a nomex backdrop with grid, gyroscopes, ruler, string, and soft Earth, moon, and Mars scale models for EPO demonstrations and live International Space Station (ISS) education downlinks. The EPO demonstrations will be downlinked, edited, and used to support education resources for educators and students in grades K-12 across the United States. Live downlinks from ISS will be aired on NASA TV and connect crewmembers directly to students in classrooms.

Project Type: Payload

Images and Captions:

EPO-Kit D items including Earth, moon, and Mars scale models, gyroscopes, string, and a ruler. Image courtesy of Feng (Michael) Li.

Operations Location: ISS Inflight**Brief Research Operations:**

- EPO-Kit D items are used to support EPO demonstrations and live education downlinks; during these activities the crew will set up the ISS video camera for the sessions onboard the ISS.
 - During the live education downlinks students and educators in the classrooms will be able to ask questions of the crewmembers. When responding to the questions the crewmembers will also be able to demonstrate the answers through the live downlink.
 - For the recorded EPO demonstrations the video will be used in developing education curriculum support materials for distribution to educators worldwide.

Operational Requirements: EPO-Kit D does not require power or telemetry. However, each EPO demonstration and live downlink requires approximately one hour from at least two crewmembers, one of whom will operate the video equipment.

Operational Protocols: After setting up the EPO demonstration and live education downlink, at least one crewmember will perform the demonstration while another films it. The demonstration is then dismantled and returned to stowage. After the videos are returned to Earth, they will be used to develop teaching guides, project plans, and educational packages focusing on the physical sciences and technology.

Category: Observing the Earth and Educational Activities

Subcategory: Educational Activities

Space Applications: EPO-Kit D introduces the next generation of space explorers to the environment of space. This investigation will encourage students to pursue studies and careers in science, technology, engineering, and mathematics.

Earth Applications: EPO-Kit D is part of NASA's continuing effort to use space as a unique educational tool for K-12 students. Everyday items, such as toys and tools, are given a new twist by combining them with the allure of space flight and the unusual weightless environment to produce educational materials that inspire interest in science and technology and encourage curiosity and creativity.

Manifest Status: Planned

Supporting Organization: Space Operations Mission Directorate (SOMD)

Previous Missions: N/A

Results: N/A

Results Publications: N/A

Related Publications:

[McClain B, Woodard D. Extending the Learning Environment to the World's Most Unique Microgravity Laboratory: The International Space Station. 54th International Astronautical Congress of the International Astronautical Federation, the International Academy of Astronautics, and the International Institute of Space Law, Bremen, Germany. 2003 , 29 September - 3 October; IAC-03-P.5./T.5.03](#)

National Aeronautics and Space Administration Educational Product. International Toys in Space - Science on the Station. DVD. 2004 ;ED-2004-06-001-JSC.

Web Sites:

Johnson Space Center – Education and Student Programs
<http://education.jsc.nasa.gov/>

NASA Education Program
<http://education.nasa.gov/home/index.html>

Central Operation of Resources for Educators (CORE)
<http://education.nasa.gov/edprograms/core/home/index.html>

Related Payload(s): EPO-Kit C, EPO-Educator, EPO